State of Illinois
Department of Transportation

CONSTRUCTION INSPECTOR'S CHECKLIST FOR CONTINUOUSLY REINFORCED PCC PAVEMENT

This checklist has been prepared to provide the field inspector a summary of easy-to-read step-by-step requirements relative to the proper construction of Continuously Reinforced PCC Pavement (Section 421). The following questions are based on information found in the Standard and Supplemental Specifications, Highway Standards, Construction Manual and current policy memorandums and letters.

Have you checked the contract Special Provisions, Supplemental Specifications and plans to see if any modifications have been made to the requirements listed herein? ____

1. SUBBASE TRIMMING

Has the subbase been trimmed prior to paving? (420.05) ____

When a slipform paver is used, is the trimming being done with a subgrade machine (1103.09) prior to paving? (420.05) (301.06(b)) ____

2. PAVING FORMS

If paving forms are used do they meet the following requirements?

Are the forms: metal, not less than 3 m (10 feet) in length, equipped with both pin locks and joint locks, within 2 mm ($^1/_{16}$ inch) along the length of its upper edge, within 6 mm ($^1/_4$ inch) along the length of its front face? (1103.05) ____

Is the height of form face not less than edge thickness of proposed pavement, the base width equal to or greater than the height, and are 3 steel pins being used to secure each section? (1103.05) (420.06) ____

Are the forms being set on a hard and true grade, built up in $^1/_2$-inch maximum lifts of granular material in low areas (without using wooden shims) set not less than required for at least one days paving in front of the paver, and cleaned and oiled prior to the placing of concrete? (420.06) ____

When wooden forms are allowed, are they full depth, smooth, free of warp, not less than 50 mm (2 inches) thick when used on tangent, and securely fastened to line and grade? (1103.05) ____

Are curved forms of metal or wood being used on curves of 30 m (100 foot) radius or less? (1103.05) ____

3. FORM ALIGNMENT

Is the contractor checking (eyeballing) the forms for line and grade and making necessary adjustments prior to concrete placement? (420.06) ____

4. TEMPLATE

Is the surface of the subbase being tested for crown and elevation by means of a heavy subgrade template? (301.06) ____

5. SUBBASE THICKNESS TEST

After trimming, is the thickness of the subbase being checked by any method at every 75 m (250 ft.) location or less? (Documentation Section, Construction Manual) ____

Are all these job control thickness tests being recorded and retained as part of the job records? (Table 1 & 7, PPG) (311.07) ____

6. DRAINAGE

Is the subgrade being kept drained during all operations? Are all berms of earth deposited adjacent to the grade being kept drained by cutting lateral ditches through the berms? (301.08) ____

7. WIDE FLANGE BEAM JOINT

If wide flange beam joint anchorages are specified, are they staked and checked for dimensions and rebar placement as shown in the plans? ____

Are they constructed of Class SI or PV Concrete at least 24 hours prior to pavement construction? (421.07(d)) ____

8. LONGITUDINAL CONSTRUCTION JOINT

Are you marking the beginning and ending stations where adjacent curb, median, or pavement will necessitate the placement of epoxy coated deformed steel tie bars in the edge of the proposed pavement? (420.10(b)) ____

9. SUPERELEVATION STAKING

Are you examining the plan curve data for all curves to determine where to stake the beginning and ending stations for all super-elevation transitions? ____

By giving the contractor these points and intermediate points, a smooth transition from crown to super can be constructed.

10. PLANT & MATERIALS APPROVAL

Has the plant where the concrete is to be produced been approved? (1103.02) ____

Has the contractor notified you of his/her proposed sources of materials prior to delivery? (106.01) ____

Has all material been inspected, tested and approved before incorporation in the work? (106.03) ____

Is this project set up as Quality Control/Quality Assurance (QC/QA)? ____

If so, are you reviewing the latest version of the QC/QA documents for information regarding quality control procedures by the Contractor and quality assurance by the department? ____

> Most PCC paving projects will be QC/QA. The QC/QA requirements will apply to both the PCC pavement and the CAM II Stabilized subbase. Contact your Materials department for concrete testing equipment and mixture design approval.

11. TEMPERATURE LIMITATIONS (1020.14(a))

Is the outside air temp in the shade at least 2°C (35 °F) and ascending before allowing the contractor to start mixing and placement operations? ____

Are you discontinuing the contractor's operations when a descending air temp reaches 5°C (40 °F)? ____

Is the temp of the concrete between 10°C (50 °F) and 32°C (90 °F) at the time of placement? ____

12. REINFORCEMENT LAPPING

Are the locations and lengths of lap for bar or fabric reinforcement in conformance with the details shown in Std. 421001? ____

Are all bar and fabric laps being tied? (421.06) ____

13. MIXING CONCRETE (1020.11)

Is the contractor producing the concrete in conformance with one of the following methods? Check each article for a review of requirements and restrictions for each: ____

a. Stationary mixer. (1103.01(a)) & (1020.11(c)) ____

b. Transit mixed concrete. (1020.11(c)) ____

14. TRUCK REQUIREMENTS

Is all concrete which is mixed in a stationary mixer being deposited within 30 minutes when hauled in nonagitating trucks and within 60 minutes when hauled in agitor trucks? (1020.11(d)(8)) ____

Is transit mixed concrete being delivered and deposited within 60 minutes from the time stamped on the ticket? (1020.11(d)(8)) ____

If the contractor plans to use previously placed pavement as a haul road, are you checking trucking weights to assure compliance with maximum weights as permitted by state law? See Form BT 753. (107.01) & (701.05(c)(6)) ____

15. REINFORCEMENT PLACEMENT

Is the reinforcement being supported on the prepared subbase by plastic coated chairs fabricated with sand plates? (421.06(a)) ____

Note: Epoxy coated chairs are not required. (420.02 Note 1)

Does the engineer approve the transverse tie bar reinforcement being fastened to the longitudinal bars with wire, clips or other methods? (421.06(a)) ____

16. SEQUENCES OF FORM TYPE PAVING

Is all of the required concrete finishing equipment on the job and in acceptable working condition? Are the following sequences for form type paving being properly followed:

a. Placing concrete (420.07). As little rehandling as possible. If equipment used can cause segregation, is the concrete being unloaded into an approved spreading device? (1103.12) ____

b. Strike-off (420.09). Is the concrete being struck full and to the approximate cross section of the pavement? ____

c. Consolidation (421.08). Is one pass of an approved surface vibrator (minimum of 3500 VPM) or internal vibrator (minimum of 7000 VPM) (1103.12) being made? Are you checking the vibrator frequency at the start of each day with a contractor furnished reed tachometer? ____

d. Screeding (420.11(a))

(1) Is the concrete being screeded by an approved finishing machine? (1103.13(b)) ____

or;

(2) (When breakdowns occur) Hand methods will be permitted to finish up deposited concrete. (420.11(a)(2)) ____

or;

(3) (When pavement width varies or is less than 3 m (10 ft.)). Vibrating screed may be used for strike-off and consolidation. (420.11(a)(3)) ____

e. Longitudinal floating (420.11(b))

(1) Is the form riding mechanical float (1103.15) making 2 passes over all areas? (420.11(b)(1)) ____

or;

(2) Form riding finisher float suspended on rigid frame. (1103.14) (420.11(b)(2)) ____

or;

(3) (In emergency or when specified) 3.5 m x 150 mm (12 ft. x 6 inches) hand operated longitudinal float (1103.17(e)) operated from form riding foot bridges. (1103.17(d)) (420.11(b)(3)) ____

f. Straightedging (420.11(c)) - At least two 3 m (10 ft) long shoulder operated surface trueness testers. (1103.17(h)) ____

g. Edging (420.11(d)) - At least two 6 mm (1/4 inch) radius edging tools. (1103.17(j)) ____

17. SEQUENCES OF SLIPFORM PAVING

When the contractor uses this optional method for the construction of the pavement are the following sequences being properly followed:

a. Is the formless paver (1103.16) capable of spreading, consolidating internally, screeding and float finishing the newly placed concrete in one pass to the required line and grade? (420.17) ____

b. Are you checking the vibrator frequency at the start of each day with a contractor furnished reed tachometer? (1103.12) ____

c. Is the pavement being straightedged, edged and textured as required in the previous question? (420.11) ____

d. Does the contractor have available at all times metal or wooden sideforms and burlap or curing paper for the protection of the pavement in case of rain? (420.17) ____

e. Is the contractor immediately repairing all slumping edges in excess of 13 mm (1/2 inch)? (See 420.17(a) & (b) for repairing excessive edge slump.) ____

18. THICKNESS TEST

Are you checking the thickness of the pavement at least at every 75 m (250 ft) location? (Documentation Section, Construction Manual) (Before and after rod and level, before and after stringline, or direct probing measurements are all acceptable.) Record and retain in job records. (420.18) (407.10) ____

19. AIR CONTENT (1020.08)

Are you testing the concrete for air (5 - 8%) at least every 75 m (250 foot) of pavement? (Sampling Schedule 3, PPG or Special Provisions) Record and retain in job records. ____

20. SLUMP (1020.07)

Are you testing the concrete for slump 20 mm to 40 mm (3/4 to 1 1/2 inch) at least once each day? (Sampling Schedule 3, PPG or Special Provsions) Record and retain in job records. ____

Note: A maximum slump limit up to 75 mm (3 inches) is allowed provided the mix is reproportioned. (1020.05(f))

21. REINFORCEMENT DEPTH CHECKS

Are you periodically probing the concrete to check the vertical positioning of the pavement reinforcement? Refer to Standard 421101 or 421106 for reinforcement placement and Article 421.06(a) for tolerances. Record and retain in job records. ____

22. STRENGTH (701.05(c)(6))

Are test specimens being cast at the site of work at the following frequency: ____

a. Modulus of Rupture 150 mm x 150 mm x 750 mm (6" x 6" x 30" beam) (Section 3C, Prop. Manual): 4 beams first day; 2 per day thereafter. (Manual for Test Procedures for Matrials)

Break @ 3, 5, 7 and 14 days.

Strength requirement = 4.5 MPa (650 psi) in 14 days (701.05(c)(6))

Report on Form LW 3, "Field Record Book of Modulus of Rupture Tests of Concrete Beams" ____

or,

b. Compressive Strength 150 mm dia. x 300 mm cylinder (6" dia. x 12" cylinder). (Manual for Test Procedures for Matrials)

Make 2 cylinders in lieu of each beam (Sampling Schedule 3, PPG or Special Provisions)

Strength requirement = 24 MPa (3500 psi) in 14 days (701.05(c)(6)) ____

23. SAWED LONGITUDINAL JOINT (420.10(a))

a. Strengthened by 750 mm (30 inches) - #6 tie bars at 750 mm (30 inches) centers at t/2 depth perpendicular to the joint? (Std. 420001) ____

b. Sawing of the longitudinal joint may commence as soon as the concrete has hardened sufficiently to permit sawing without excessive raveling. The saw cut shall be made to a depth of t/3 of the pavement thickness. (420.10(a)) (Std. 421101 & 421106) ____

24. TRANSVERSE EXPANSION JOINTS (420.10(c))

a. Is the 75 mm (3 inch) preformed joint filler continuous from form to form, shaped to the subbase and to the keyway (if present) along the form? (420.10(c)) ____

b. Are the smooth dowel bars (if required) positioned parallel to the grade @ t/2 depth and @ 300 mm (12 inches) centers? ____

c. Are the capped ends of the bar greased? (420.10(e)) ____

25. TRANSVERSE CONSTRUCTION JOINTS (421.07(b))

a. Are transverse construction joints placed at the end of each day's operation or after an interruption in the concreting operation of 30 minutes or more? ____

b. Are joints at least 1.1 m (3 1/2 feet) from nearest bar lap? ____

c. Are joints strengthened by supplementary 1.8 m (6 inches) long No. 20 (No.6) bars placed between normal longitudinal steel? (Std. 421101) ____

d. Are the transverse construction joints formed by means of a clean (not oiled) split header board conforming to the cross section of the pavement? ____

e. Is the concrete internally vibrated along the length of the joint both at the end of the day's operation and once again at the resumption on the next day? ____

26. SURPLUS - DEFICIENCY DETERMINATION

Is a daily check being made on the yield of produced concrete? A deficiency computation is serious; it usually indicates thin pavement. ____

$$D \text{ or } S = \frac{\text{Required Volume} - \text{Volume Used}}{\text{Required Volume}} \text{ x } 100$$

Where,

Required volume = L_{meter} x W_{meter} x D_{meter} (L' x W' x D' x 1/27)

Used volume = No. of batches x m^3 (cy)/batch

27. PAVEMENT STATIONING

Is your construction office stamping stations in the pavement surface every 100 m (250 ft.) at the location specified? Are station equations being stamped where they occur? ____

28. CURING (1020.13(a))

Are the pavement surface and edges being cured for 3 days (1020.13(a)) by one of the following methods: ____

a. Waterproof Paper Method. Covered as soon as possible with blankets of tear-free reinforced kraft paper (1022.03), with 300-mm (12 inches) laps, properly weighted? Has the pavement been wetted with a fine spray first? (1020.13(a)(1)) ____

b. Polyethylene Sheeting Method. Covered as soon as possible with 30-m (100-ft) long sheets of white polyethylene (1022.03), with 300-mm (12 inches) laps, properly weighted? Has the pavement been sprayed with a fine mist of water first? (1020.13(a)(1)) ____

c. Wetted Burlap Method. Covered as soon as possible with 2 layers of wet burlap (1022.02), with 150 mm (6 inch) laps? Kept saturated by means of a mechanically operated sprinkling system or an impermeable covering? (Alternate; one burlap and one burlene (1022.05) blanket) (1020.13(a)(3)) ____

d. Membrane Curing Method. As soon as water sheen has disappeared, are 2 separate applications, separated by at least one minute, of agitated Type III (white) curing compound (1022.01) being uniformly applied? 0.16 L/m^2 (one gallon/250 sf) application? (1020.13(a)(4)) Not allowed between November 1 & April 15 (1020.13Note 6). Not allowed if protective coat is to be applied (1020.13(c)) ____

29. PROTECTION

Is the contractor providing protection of the pavement from low temperatures as follows: (1020.13(c))

Min. Temp. Forecast	Protection	
4°C - 0°C (25°F. - 32° F) (or if drops below 0°C (32° F) during first 72 hours)	1 layer of poly & 1 layer burlap, or 2 layers of polyethylene, or 2 layers of waterproof paper	____
Below -4°C (25° F)	150 mm (6 inches) of straw covered with 1 layer of poly or waterproof paper	____

30. SURFACE VARIATIONS

At the end of the curing period, are you profilographing or straight-edging each wheel lane for surface variations? ____

Are all bumps being marked, ground down and sprayed with protective coat? (420.12) ____

31. OPENING TO TRAFFIC

Is the pavement being closed to traffic until:

a. The curing and protection period has elapsed? (701.05(c)(6)) ____

b. All joints have been sealed? (420.14) ____

c. The required strength has been achieved by test specimen? (701.05(c)(6)) ____

If the contractor wishes to open the pavement to traffic prior to the date of your first routine beam break, are additional specimens being cast and then allowed to cure out in the open the same as the pavement? (701.05(c)(6)) ____

32. PROTECTIVE COAT

a. Is a protective surface treatment being applied when pavement is constructed after October 15, and will be opened to traffic prior to the following April 15; or when directed by the Engineer? (420.21) ____

b. Are 2 coats at 11 m^2/L (50 sy/gal) coat being applied to 14 day old minimum pavement? Air temperature above 10°C (50° F)? (420.21) ____

33. REMOVAL AND REPLACEMENT OF CR PCC PAVEMENT (442.05(a))

If for any reason the contractor is required to replace any of the pavement prior to final acceptance, are the construction requirements of Article 442.05(a) being adhered to? ____

34. FIELD RECORDS

Are all tests, measurements, observations and computations required in the foregoing being maintained in a hard back field book? ____

35. DOCUMENTATION OF FINAL CONTRACT QUANTITIES

CONTINUOUSLY REINFORCED PCC PAVT, m^2 (SY)
PAVEMENT REINFORCEMENT, m^2 (SY)
PROTECTIVE COAT, m^2 (SY)

a. Measured Quantities: Computations based on measured lengths and measured variable width segments. (421.10(b)) Use plan width for all constant width pavement. (109.01) ____

or;

b. Contract Quantities: Jointly signed Form BC 981 required. (420.22(a)) (202.07(a)) ____

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